APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,070	08/30/2006	Noriyoshi Tsuyuzaki	OKB-017	5909

20374   7590   07/30/2010

KUBOVCIK & KUBOVCIK
SUITE 1105
1215 SOUTH CLARK STREET
ARLINGTON, VA 22202

EXAMINER
YANG, JAMES J

ART UNIT	PAPER NUMBER
2612	

MAIL DATE	DELIVERY MODE
07/30/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2010*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6,8-11,13 and 15-19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8-11,13 and 15-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/09/2010*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

This Office Action is in response to Applicant's amendment and request for continued

examination filed 06/15/2010. Claims 1-4, 6, 8-11, 13, and 15-19 are currently pending

in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1.   Claims 1-4, 8-11, and 15-19 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Shi (EP 0957220) in view of Shilton (WO 99/41834).

Claim 1, Shi teaches:

An authentication apparatus comprising

a body, and a partner side paired with the body (*Shi*, Paragraph [0008], The

lock body is a *body*, and the key-body is a *partner side*.), the apparatus comprising:

a random pulse generator, arranged in the body or the partner side, or in

both the body and the partner side (*Shi*, Paragraph [0008], The random code

generator IC3 is a *random pulse generator*, and is arranged in the body.), **which**

generates random pulses (*Shi,* Paragraph [0009], The random pulse generation is

disclosed in Fig. 3 and Paragraph [0017].);

a means which outputs authentication data based on both a pulse voltage

(Shi, Paragraph [0017], A true random code is partially created from a voltage-

controlled oscillator to obtain a spectrum-spreaded signal.**) and a pulse interval of the**

random pulses generated by the random pulse generator (*Shi,* Paragraph [0013],

The microprocessor IC1 outputs the new codes from the code generator and stores

them in memory units. The random numbers generated are determined by a sequence

of pulses with random widths, thus a pulse interval (see Shi, Paragraph [0015]).);

a means which stores authentication data (*Shi,* Paragraph [0006]),

a communication means which transmits/receives authentication data (*Shi,*

Paragraph [0008]); and

a control means which controls the communication of authentication data

and collates authentication data (*Shi,* Paragraph [0009], Microprocessor IC1 is the

control means, and the comparison between the codes stored in the lock-body and the

key-body is the *collation of the authentication data*.**).**

Shi does not teach:

The random pulse generator detects α particles, a beta ray or a gamma ray

released by the collapse of an atomic nucleus and generates the random pulses.

Shilton teaches:

The random pulse generator detects the α particles, the beta ray or the gamma ray released by the collapse of the atomic nucleus (*Shilton***, Page 5, Lines 18-20, The radiation is detected by a PIN diode (see Shilton, Page 5, Lines 30-31) or directly onto a silicon chip (see Shilton, Page 6, Lines 1-2). The radioactive decay is the *collapse of the atomic nucleus.***) and generates random pulses (***Shilton***, Page 4, Lines 13-15).**

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the random code generator in Shi by integrating the low radiation source and detector for generating random events as taught by Shilton.

The motivation would be to produce random codes that are difficult to duplicate to prevent fraud or corruption of random pulse generators (see Shilton, Page 1, Lines 9-18).

Claim 2, Shi in view of Shilton further teaches:

The control means receives authentication data stored in the storage means arranged on the partner side, collates the received authentication data with authentication data of the storage means arranged in the body (*Shi***, Paragraph [0009], Microprocessor IC1 is the *control means*, and the comparison between the codes stored in the lock-body and the key-body is the *collation of the authentication data.***), and in accordance with the result of collation, authenticates the partner side (***Shi***, Paragraph [0009]), and in that upon completion of the**

authentication, authentication data is updated, and new authentication data thus

updated is written in the storage means of the body and the partner side (Shi,

Paragraph [0009]).

Claim 3, *Shi in view of Shilton further teaches:*

A drive unit control means which controls a drive unit in accordance with

the result of collation by the control means (*Shi*, Paragraph [0009], The driving

mechanism, represented by an output drive IC5, is a *drive unit control means*, which

controls the lock of a lock-body, which is a *drive unit*.).

Claim 4, *Shi in view of Shilton further teaches:*

The body is the body of an electronic lock, and the partner side is a key

(*Shi*, Paragraph [0008], The lock-body comprises a microprocessor, memory, random

code generator, driver, and alarm unit, thus it is an electronic lock.).

Claim 8, *Shi in view of Shilton further teaches:*

The communication means transmits/receives the authentication data by

circuit connection due to contact or by infrared light communication or radio

communication (*Shi*, Paragraph [0008]).

Claim 9, *Shi teaches:*

An authentication method comprising the steps of:

generating random pulses by a random pulse generator (*Shi*, Paragraph

[0009], The random pulse generation is disclosed in Fig. 3 and Paragraph [0017].)

arranged in a body or a partner side paired with the body, or in both the body and

the partner side (*Shi*, Paragraph [0008], The random code generator IC3 is a *random*

pulse generator, and is arranged in the body.**);**

outputting authentication data based on both a pulse voltage (Shi,

Paragraph [0017], A true random code is partially created from a voltage-controlled

oscillator to obtain a spectrum-spreaded signal.**) and a pulse interval of the random**

pulses generated by the random pulse generator (*Shi*, Paragraph [0013], The

microprocessor IC1 outputs the new codes from the code generator and stores them in

memory units. The random numbers generated are determined by a sequence of

pulses with random widths, thus a pulse interval (see Shi, Paragraph [0015]).**);**

storing authentication data (*Shi*, Paragraph [0006]**);**

transmitting/receiving authentication data (*Shi*, Paragraph [0008]**); and**

controlling the communication of authentication data and collating

authentication data (*Shi*, Paragraph [0009], Microprocessor IC1 is the *control means*,

and the comparison between the codes stored in the lock-body and the key-body is the

collation of the authentication data.**).**

Shi does not teach:

The random pulse generator detects the α particles, the beta ray or

a gamma ray released by the collapse of an atomic nucleus and generates

random pulses.

Shilton teaches:

The random pulse generator detects the α particles, the beta ray or the

gamma ray released by the collapse of the atomic nucleus (*Shilton***, Page 5, Lines**

18-20, The radiation is detected by a PIN diode (see Shilton, Page 5, Lines 30-31) or

directly onto a silicon chip (see Shilton, Page 6, Lines 1-2).**) and generates random**

pulses (*Shilton***, Page 4, Lines 13-15).**

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the random code generator in Shi by integrating the low

radiation source and detector for generating random events as taught by Shilton.

The motivation would be to produce random codes that are difficult to duplicate

to prevent fraud or corruption of random pulse generators (see Shilton, Page 1, Lines 9-

18).

Claim 10, Shi in view of Shilton further teaches:

The control step receives the authentication data stored in a storage means

arranged on the partner side, collates the received authentication data with

authentication data of a storage means arranged in the body (*Shi***, Paragraph**

[0009], Microprocessor IC1 is the *control means*, and the comparison between the

codes stored in the lock-body and the key-body is the *collation of the authentication*

data.), **authenticates the partner side in accordance with the result of collation**

(*Shi*, Paragraph [0009]), **and after completion of authentication, updates**

authentication data, and writes new authentication data thus updated in the

storage means of the body and the partner side (Shi, Paragraph [0009]).

Claim 11, Shi in view of Shilton further teaches:

A drive unit control step for controlling a drive unit in accordance with the

result of collation in the control step (*Shi*, Paragraph [0009], The driving mechanism,

represented by an output drive IC5, is a *drive unit control means*, which controls the

lock of a lock-body, which is a *drive unit*.).

Claim 15, Shi in view of Shilton further teaches:

The communication step transmits and receives the authentication data by

circuit connection due to contact or by infrared light communication or radio

communication (*Shi*, Paragraph [0008]).

Claim 16, Shi in view of Shilton further teaches:

The body or the partner side includes the hardware of a computer (*Shi*,

Paragraph [0012], The microprocessor IC1 and the non-volatile memory unit IC2 are

hardware of a computer, and the body includes the hardware.), **and the partner side or**

the body including the random pulse generator is mounted integrally with or

independently of the hardware of the computer (*Shi*, Paragraph [0012], As further

disclosed in Fig. 1, the true random generator IC3 is mounted integrally with the

hardware of the computer components IC1 and IC2 within the lock-body.).

Claim 17, *Shi in view of Shilton further teaches:*

The body or the partner side includes the hardware of a computer (*Shi*,

Paragraph [0012], The microprocessor IC1 and the non-volatile memory unit IC2 are

hardware of a computer, and the body includes the hardware.), **and the partner side or**

the body including the random pulse generator is mounted integrally with or

independently of the hardware of the computer (*Shi*, Paragraph [0012], As further

disclosed in Fig. 1, the true random generator IC3 is mounted integrally with the

hardware of the computer components IC1 and IC2 within the lock-body.).

Claim 18, Shi teaches:

A computer readable memory medium storing an authentication program,

said authentication program (*Shi*, Paragraph [0006], Shi discloses in Fig. 2 a flow

chart showing the operation of the cryptogram lock system performed by the

microprocessor IC1, non-volatile memory unit of the lock-body and key-body, random

code generator IC3, output driver IC5, and alarm unit IC6, which is automatically

performed. It is inherent of a system that automatically performs the steps disclosed in

Fig. 2 and Paragraph [0020] that the steps, as a whole, are programmed into the

microprocessor IC1 of the lock-body.) **comprising:**

a code to generate random pulses from a random pulse generator (*Shi*,

Paragraph [0009], The random pulse generation is disclosed in Fig. 3 and Paragraph

[0017].) **arranged in a body or a partner side paired with the body, or in both the**

body and the partner side partner side (*Shi*, Paragraph [0009], The random pulse

generation is disclosed in Fig. 3 and Paragraph [0017].);

a code to output authentication data based on both a pulse voltage (Shi,

Paragraph [0017], A true random code is partially created from a voltage-controlled

oscillator to obtain a spectrum-spreaded signal.**) and a pulse interval of the random**

pulses generated by the random pulse generator (*Shi*, Paragraph [0013], The

microprocessor IC1 outputs the new codes from the code generator and stores them in

memory units. The random numbers generated are determined by a sequence of

pulses with random widths, thus a pulse interval (see Shi, Paragraph [0015]).**);**

a code to store authentication data (*Shi*, Paragraph [0006]**);**

a code to transmit/receive authentication data (*Shi*, Paragraph [0008]**); and**

a code to control the communication of authentication data and collate

authentication data (*Shi*, Paragraph [0009], Microprocessor IC1 is the *control means*,

and the comparison between the codes stored in the lock-body and the key-body is the

collation of the authentication data.**).**

Shi does not teach:

The random pulse generator detects α particles, a beta ray or a gamma ray

released by the collapse of an atomic nucleus and generates the random pulses.

Shilton teaches:

The random pulse generator detects the α particles, the beta ray or the

gamma ray released by the collapse of the atomic nucleus (*Shilton*, Page 5, Lines

18-20, The radiation is detected by a PIN diode (see Shilton, Page 5, Lines 30-31) or

directly onto a silicon chip (see Shilton, Page 6, Lines 1-2). The radioactive decay is the

*collapse of the atomic nucleus.***) and generates random pulses (***Shilton*, Page 4, Lines

13-15**).**

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the random code generator in Shi by integrating the low

radiation source and detector for generating random events as taught by Shilton.

The motivation would be to produce random codes that are difficult to duplicate

to prevent fraud or corruption of random pulse generators (see Shilton, Page 1, Lines 9-

18).

Claim 19, Shi in view of Shilton further teaches:

The code to control the communication of authentication data and collate

authentication data includes: a code to receive authentication data stored in a

storage means arranged on the partner side (*Shi*, Paragraph [0009], The memory of

the IC4 of the key-body is the *storage means arranged on the partner side.***); a code to**

collate the received authentication data with authentication data of a storage

means arranged in the body (*Shi*, Paragraph [0009], Microprocessor IC1 is the *control*

means, and the comparison between the codes stored in the lock-body and the key-

body is the *collation of the authentication data.*); a code to authenticate the partner

side in accordance with the result of collation (***Shi*, Paragraph [0009]); a code to

update authentication data after completion of the authentication (**Shi, Paragraph

[0009]); and a code to write new authentication data thus updated in the storage

means of the body and the partner side (**Shi, Paragraph [0009])**.

2.   Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Shi (EP 0957220) in view of Shilton (WO 99/41834), and further in view of Barker (U.S.

5,076,971).

Claims 6 and 13, Shi in view of Shilton teach:

An α particle radiator includes ^{241}Am, ^{210}Pb-^{210}Po, ^{210}Po, and/or ^{244}Cm

(*Shilton*, Page 5, Lines 21-25**)**.

Shi in view of Shilton teach:

A beta ray radiator includes ^{210}Pb.

Barker teaches:

A beta ray radiator includes ^{210}Pb (*Barker*, Col. 9, Lines 9-11**)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the radiation source in Shi in view of Shilton with a ^{210}Pb

beta emitter as taught by Barker.

The motivation would be to provide a stable beta radiation source with a long

half-life (see Barker, Col. 2, Lines 6-16) applicable as a low activity radiation source in a

Random Pulse Generator (see Shilton, Page 5, Lines 18-30).

Response to Arguments

Applicant's arguments filed 06/15/2010 have been fully considered but they are

not persuasive.

In response to applicant's arguments on Page 9, lines 1-5, regarding claims 1, 9,

and 18, that none of the references teach or suggest using both pulse voltage and pulse

intervals, the examiner respectfully disagrees. Paragraph [0017] of the Shi reference

teaches using a voltage-controlled oscillator (VCO) for obtaining a spectrum-spreaded

signal, which is used to generate true random code. The voltage used to control the

VCO is thereby interpreted as a pulse voltage. Thus, the random code is generated by

both a pulse voltage and a pulse interval.

Applicant's arguments with respect to claims 18-19 have been considered but are

moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES YANG whose telephone number is 571-270-5170. The examiner can normally be reached on M-F 8:30-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on 571-272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.Y./

/Brian A Zimmerman/
Supervisory Patent Examiner, Art Unit 2612